PROC. ENTOMOL. SOC. WASH.
86(3), 1984, pp. 619–629

FOUR SPECIES OF *OMMATIUS* WIEDEMANN (DIPTERA: ASILIDAE) FROM PUERTO RICO AND THE VIRGIN ISLANDS

A. G. Scarbrough

Department of Biological Sciences, Towson State University, Baltimore, Maryland 21204.

Abstract.—Four species of *Ommatius* Wiedemann, *O. vitreus* Bigot, *O. **monensis*** Scarbrough new species, *O. **falcatus*** Scarbrough new species, and *O. marginellus* (Fabricius), are reported from Puerto Rico and the Virgin Islands. The last 3 species are described and illustrated. A key to the species is also included, and *O. tibialis* Say is removed from the list of Caribbean Asilidae.

Presently *Ommatius marginellus* (Fabricius) is listed from Cuba, southward through the Lesser Antilles, from eastern South America (Martin and Papavero, 1970), and from the Galapagos Islands (Linsley and Usinger, 1966). However, a re-evaluation of the species suggests a more restricted distribution to the middle Caribbean Islands. Farr (1965) found in museums at least three different species labeled *O. marginellus*. Upon examination of over 100 museum specimens labeled *O. marginellus,* I also found numerous errors in the identification of the species. The problems in identification apparently originate from the brief original description (Fabricius, 1781) of the species and recent references (Curran, 1928; Bromley, 1929) to the presence of marginal scutellar bristles. Until recently (Farr, 1965; Scarbrough, in press), *O. marginellus* was the only species in the Caribbean region stated to have marginal scutellar bristles. It seems likely then that any species with this character was immediately identified and labeled as such.

Through a loan from the Universitetet Zoologiske Museum, Copenhagen, Denmark, I was able to examine the male holotype of *O. marginellus*. The type is in poor condition, and consists of only the thorax, wings and parts of the foreleg. The scutellum is without marginal bristles or any evidence (scars or basal sockets) that they were present earlier. Unfortunately, the original description and later modifications of it (Fabricius, 1781; 1787; 1805) do not refer to this character. In order to clarify the confusion of the identity of *O. marginellus,* I have selected specimens (♂, ♀ homotypes) from a series collected in the Virgin Islands (type locality) that closely resemble the holotype to construct a more thorough description of the species. Two undescribed species of *Ommatius* from Puerto Rico are also described and illustrated, and a third species (*O. vitreus* Bigot) is reported from Mona Island, Puerto Rico, for the first time.

Key to Species from Puerto Rico and the Virgin Islands

1. Femora wholly dark 2
– Femora dark in part only 3

2. Small slender specimen (11.0–14.0 mm); forecoxal bristles wholly white to pale yellow; epandrium deeply divided apically; costal margin straight (Mona Island & Hispaniola) ..... *O. vitreus* Bigot
– Large robust species (13.0–18.0 mm); most forecoxal bristles black; epandrium not divided apically; (Fig. 5); costal margin noticeably protruding (Mona Island) ..... *O. monensis* new species
3. Epandrium with apical ⅓ slender and sickle-shaped (Fig. 6); marginal and submarginal cells and halter yellowish (Puerto Rico) ..... *O. falcatus* new species
– Epandrium with apical ⅓ broad and more angular below; apical margin somewhat subtruncate (Fig. 3); marginal and submarginal cells clear; halter yellowish brown to brown (Puerto Rico & Virgin Islands) ..... *O. marginellus* (Fabr.)

Ommatius marginellus (Fabricius)

Figs. 1–4

Asilus marginellus Fabricius, 1781: 464; 1787: 178. Type locality Virgin Islands, St. Croix.

Dasyopogon marginellus: Wiedemann, 1821: 213.

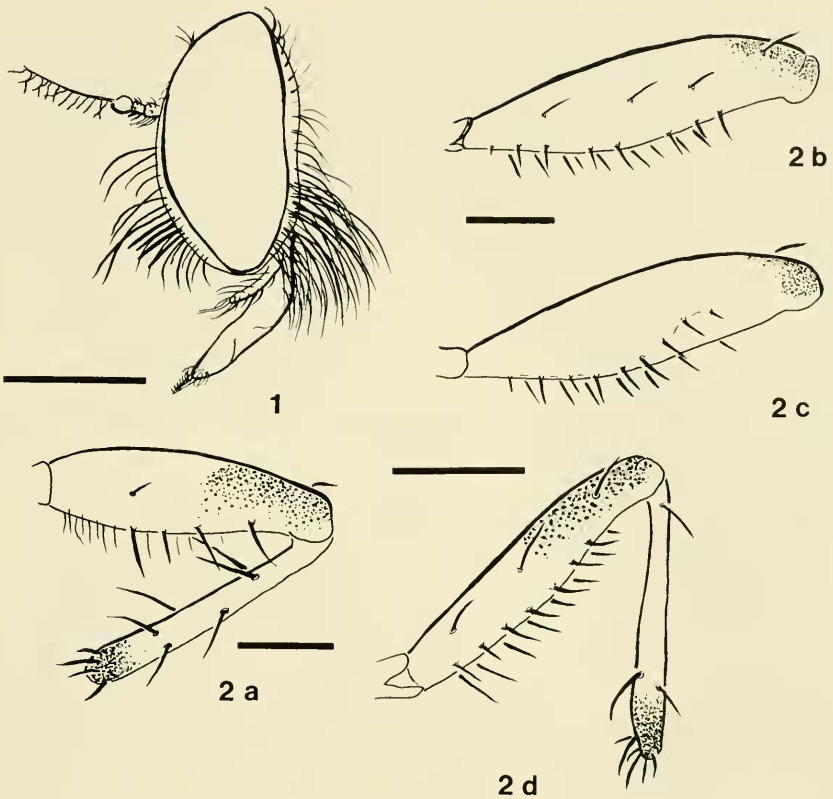
Ommatius marginellus: Coquillett, 1910: 579. Type species designated; Wolcott, 1948: 453; Hull, 1962: 434–436.

Male (Fig. 1).—Length 14.0 mm. Head dark brown; face and front grayish yellow tomentose, tomentum of occiput yellowish white. Bristles of face and front yellow to orangish, beard white; 2 long ocellar and several postocular bristles brown, the latter slightly curved forward near tips. Antennal segments each about same length, style almost twice length of 3 segments combined; 3rd segment ovate with style inserted slightly above middle and 1–3 short hairs dorsally; bristles of antennal segments mostly short and dark, those below on 1st segment pale yellow.

Thorax brown to dark brown. Scutum with yellowish to brownish white pollen in grooves along lateral margins, on prescutellar region and scutellum; pollen lightest in color in prescutellar region, golden to brownish yellow behind humeral callus. Pleural pollinosity yellowish with brown on upper half. Chaetotaxy: 2 notopleurals, 1 supraalar and 1 postalar; 2–3 weak, pale prescutellar dorsocentral hairs; pleural row of bristles pale yellow. Thoracic pile pale and weak, most abundant on prothorax, humeral callus and scutellum, sparse elsewhere. Strong marginal scutellar bristles absent. Halter yellowish brown to orangish.

Wings hyaline, costal margin moderately bulging, anterior cells with slight brownish tint. Veins dark brown apically, lighter basally. R-m crossvein before middle of discal cell. Second posterior cell somewhat constricted beyond its middle.

Legs (Fig. 2a–c) mostly orangish yellow; black on apical ¼ to $^1/_5$ anteriorly on fore- and midfemora; black band on apical ¼ of hindfemur and hind tibia; bases of basal tarsomeres of tarsi yellow to yellowish brown, the remaining segments brown. Coxae yellowish gray pollinose with yellowish bristles and pile. Bristles of femora and tibiae primarily yellow to orangish, black at apices of tibiae with 3–4 additional ones on mid- and hindtibiae; midfemur with 4 black bristles on anterior surface (2 anteroventral, 2 more apical and slightly above the former) and 1 posteroapical; hindfemur with 6 black bristles in posteroventral row. Fore-



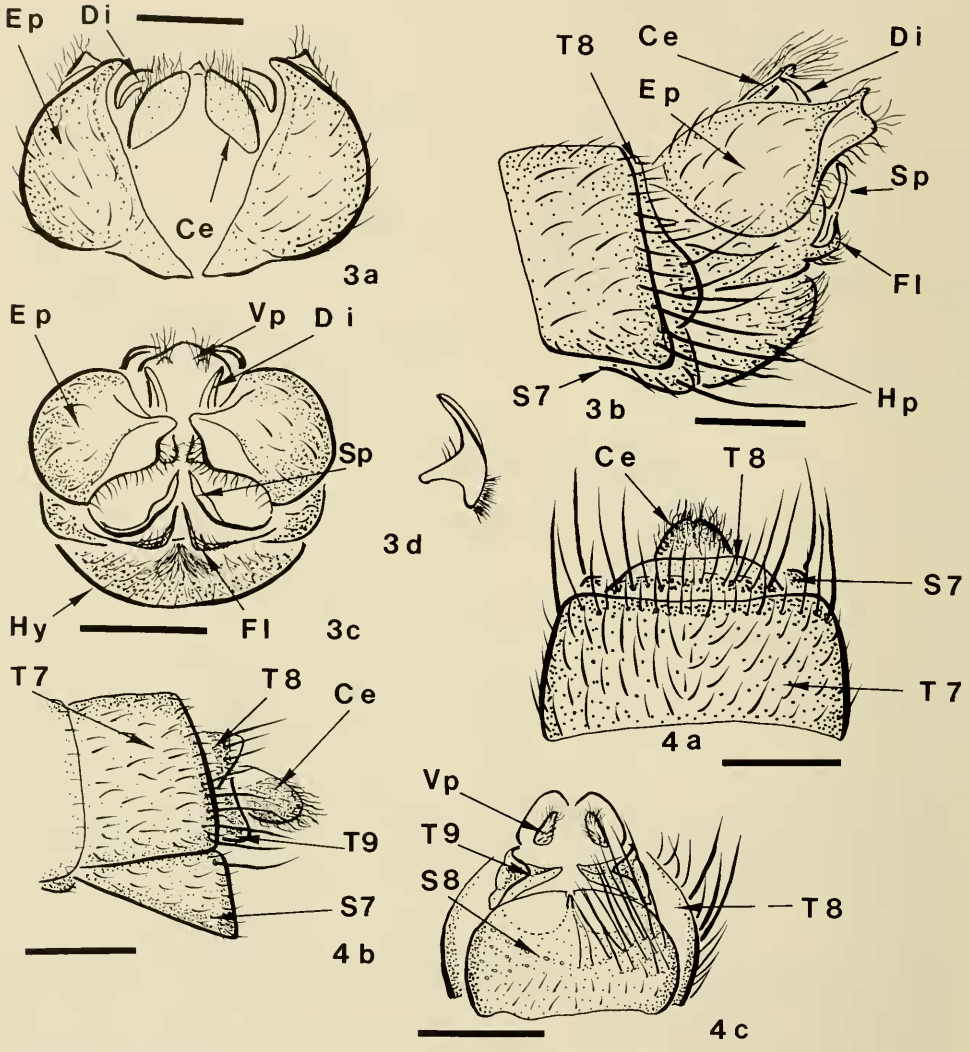
Figs. 1–4. *Ommatius marginellus* (Fabricius). 1, Head, lateral view. 2, Typical leg chaetotaxy and color patterns: (a) male midleg, front view; (b) male left hindfemur, front view; (c) male left hindfemur, posterior view; (d) female left hindleg, front view. (Horizontal bar = 1.0 mm.)

tarsi with 4 pale yellow bristles, the remaining ones black. Legs with primarily yellowish pile, black in dark areas; tibiae with black setulae and a few long, thin black hairs ventrally on foretibia.

Abdomen brown with yellow pollen and appressed setae; pile pale yellowish. Swellings of tergite 1 with 4–5 pale orangish bristles and numerous slender hairs. Tergites 7–8 somewhat shiny, the latter and much of tergite 6 with brown hairs; apical corners of tergites 3–6 with 1–2 short, bristly, pale yellowish hairs.

Terminalia (Fig. 3) primarily dark brown; lower surface, cercus and apical tips of epandrium orangish to reddish. Pile and hairs of lighter areas yellowish, some dark brown to black pile in dark areas. Epandrium swollen on basal ⅔ or more, flattened and abruptly narrowed near apex; apical margin slightly projecting dorsally, somewhat angular or subtruncate below. Hypandrium somewhat inflated. Dististylus slender, slightly curved forward, gently tapered to apex. Basistylus with a spinelike projection and a thin basal flange. Cercus short, about ⅓ length of epandrium; fused plates below cercus with 2 apical swellings and long, pale pile.

Female (Figs. 2d, 4).—Other than sexual differences, the female closely resembles the male. Length 14.0 mm. Wings without costal bulge, r-m crossvein beyond middle of discal cell, constriction of second posterior cell less apparent than in male; halter reddish. Legs darker orange with more black at apices. Leg bristles



Figs. 3–4. *Ommatius marginellus* (Fabricius). 3, Male terminalia: (a) dorsal, (b) lateral, (c) apical views; (d) left dististylus. 4, Female terminalia: (a) dorsal, (b) lateral, and (c) ventral views. Abbreviations: Ce = cercus, Ep = epandrium, Di = dististylus, Ba = basistylus, Hy = hypandrium, T = tergite, S = sternite, Sp = spine of basistylus, Fl = flange, Vp = ventral plates. Horizontal bar = 0.5 mm.

orange except for 4 black ones on midfemur, 1 on fore- and 5 on mid-tibiae. Bases of basal tarsomeres of mid- and hindtarsi light brown; 1 orangish foretarsal bristle. Abdominal segment 7 with mostly yellow setae and hairs, some dark setae above and 1 long, bristly, brown hair in apical corners. Segment 8 and tergite 9 short, retracted into segment 7. Sternite 8 with numerous brown hairs and a small, median, subapical point with a shallow depression to each side; apical margin without protuberances. Apical corners of tergite 9 slightly projecting posteriorly and wrapping around base of cercus, almost touching below.

Variation.—Length 10.0–15.5 mm. Tomentum, pollen and chaetotaxy are typically more yellowish to yellow in males, especially in males from the Virgin

Islands. Darker specimens have 1–3 additional black leg and tarsal bristles than lighter specimens. Puerto Rican specimens have darker legs than those from the Virgin Islands, with darker orange and more extensive black markings. For example, black extends the full length and width of the anterior surface of the forefemur, the apical ½ or more of the anterior surface of the midfemur, and the apical ¼ to ⅔ of the hindfemur. In addition, the black apical bands are present on the mid- (narrow) and hindtibiae (apical ¼ to ½) and the basal tarsomeres are sometimes light brown, usually dark brown. Specimens from the Virgin Islands have black markings rarely (1 male) extending beyond the apical ½ of the forefemur; apical bands on the tibiae are either absent (fore) or occur as a narrow clouded band (middle); the basal ½ of the basal tarsomeres of the posterior 2 tarsi are usually yellowish brown.

Material examined.—♂ holotype, VI; ♂ homotype 6 Aug. 1980, Brewers Bay, St. Thomas, VI (M. A. Ivie): ♀ homotype 25 Jul. 1979, Perserverance Bay, St. Thomas, VI (M. A. Ivie). VIRGIN ISLANDS (St. Thomas & St. Johns Islands) 6 ♂, 2 ♀; PUERTO RICO 18 ♂, 8 ♀.

The holotype male is in the collection of the Universitetet Zoologiske Museum, Copenhagen, Denmark. The homotypes are deposited in the USNM, Washington, D.C.; additional specimens are located in the USNM; MCZ, Cambridge University; AMNH, New York; Museum of University of Puerto Rico, Mayaguez; Universitetet Zoologiske Museum, Copenhagen, Denmark; The Museum of Entomology, University of Puerto Rico, Rio Piedras; the collections of Mike Ivie, Ohio State University, Columbus, and the author.

Discussion.—*Ommatius marginellus* is recognized by yellow to orangish facial bristles and hairs; yellow abdominal pollen; an absence of marginal scutellar bristles; tibiae and femora primarily orangish yellow to orange with black apically; epandrium with apical margin slightly projecting dorsally, subtruncate apically and angular below; basistylus with a single leglike process and basal flange; dististylus only slightly curved forward. In Farr's key (1965), *O. marginellus* runs to *O. jamaiciensis* Farr but differs from that species by the absence of white facial and pale brown leg bristles and brown tibiae, and the presence of yellow abdominal pollen, a yellowish orange halter and a slightly curved dististylus.

Ommatius monensis Scarbrough, New Species
Fig. 5

Male.—Length 18.0 mm. Head black with white to gray tomentum. Hairs and bristles of face and most of those of occiput white or whitish; ocellar and a few dorsal postocular bristles black. Mystax with abundant long and shorter hairs and bristles, hairs weaker and less abundant above. Most postocular bristles straight or nearly so, inner 2–3 strongly proclinate above eyes; 2 long ocellar bristles and 3–4 shorter ones. Antenna black, segments of about equal lengths; style slightly more than twice length of all segments; third segment slightly longer than wide; hairs primarily white on segment 1 with a few black ones above and all hairs black on segment 2.

Thorax black. Scutum with a brown pollinose patch behind humeri; brownish or yellowish gray to gray pollen in grooves, on sides above wings and in prescutellar region; light brown pollen on postalar callus. Pleural pollinosity gray, upper half of anepisternum with some yellow or brown mixed with gray. Thoracic pile weak

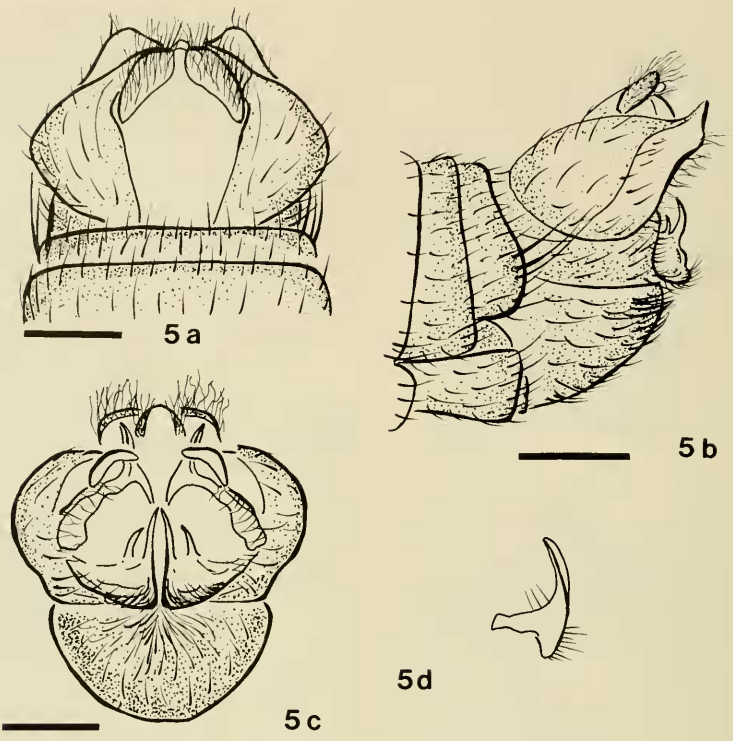


Fig. 5. *Ommatius monensis* n. sp., male terminalia: (a) dorsal, (b) lateral, and (c) apical views; (d) left dististylus. See Figures 1–4 for parts of terminalia. Horizontal bar = 0.5 mm.

and whitish; pile most abundant on prothorax, humeral callus, anepisternum, katepisternum and laterotergite, sparse or absent on remaining pleurites. Chaetotaxy: 2 notopleurals, 1 supra-alar and 1 postalar; several pale, weak dorsocentrals in prescutellar region; pleural row of bristles white to pale brownish white. Scutellum with gray to yellowish gray pollen and long whitish pile; pile along margin not noticeably different from that on dorsum. Halter brown.

Wings hyaline, veins reddish brown basally, dark brown apically, costal margin greatly swollen, marginal and submarginal cells with strong ripples and some brown adjacent veins; r-m crossvein before middle of discal cell.

Legs.—Coxae black with gray pollen and whitish pile; forecoxa with several strong black bristles and 1 or 2 white ones; mid- and hindcoxae without black bristles. Femora swollen, shiny black with apical margins brownish; tibiae brownish orange, foretibia lightest; fore- and midtibia with a small brown apical spot; hintibia with a narrow apical brown band. Tarsi dark brown, basal segments light brownish to brownish orange. Femora pile generally white, sparse posteriorly on fore- and midfemora, abundant elsewhere; pile longer below and basally on all femora and posteriorly on hindfemur. Forefemur with whitish bristles, 2 on anterior surface and a row of stiff bristles below, extending almost the full length of segment; midfemur with several whitish bristly hairs below and 5–6 bristles on anterior surface, 3–4 of latter bristles and 1 posteroapical bristle black. Hindfemur with anteroventral row and 3–4 bristles on anterior surface whitish, bristles of

posterior row and 1 anterior preapical bristle black. Tibiae with yellowish white pile and sparse black setulae; tibial and tarsal bristles black except 3 on foretarsus, 4 on foretibia and 1 on midtibia; foretibia with black bristles restricted to apex; fore- and midtibiae with long, thin black hairs in a row below.

Abdomen dark brown to black, apical margins of segments slightly lighter; grayish pollen laterally on segments with traces of brown. Whitish pile on lighter areas of segments, long on basal 3 segments; dark short setae on dark areas of tergites; tergite 1, apical corners of sternite 8, tergites 7 and 8 with one or more pale or whitish bristly hairs or bristles.

Terminalia (Fig. 5a–d) reddish brown to black with short black pile basally, longer pale pile and bristly hairs apically. Cercus dark brown; epandrium greatly swollen on basal ⅔ and black, tapered apically and reddish. Hypandrium and gonopod brown to reddish, the former slightly swollen, its apical margin almost straight in apical view; hypandrium with bristly pale hair and pile concentrated at middle of apical ⅓. Basistylus with a thick fold basally on each side and abundant pale bristly hair and pile; 4 long, slightly curved spines, 2 on each side of middle, inner one slightly longer and arising more basally. Dististylus reddish, slender, slightly curved forward. Apical lobes of plates below cercus slightly projecting.

Female.—Unknown.

Variation.—The specimens in the type series differ little, primarily in size (13.5–18.0 mm) and by having 1 or 2 additional white bristles on the hindfemur.

Holotype.—♂ "lights," Camp Capresi, Mona Is., Puerto Rico, Oct. 1956 (W. H. Cross). The holotype is deposited in the USNM collection. Paratypes. ♂ same data; ♂ Mona Is., P.R. 17–28 Apr. 1954 (J. Maldonado Capriles), deposited in the USNM collection and that of the author. A male in poor condition is in the Museum of Entomology, University of Puerto Rico, Rio Piedras. The latter was previously listed as *O. marginellus* from Mona Island, P.R. (Ramos, 1946; Wolcott, 1948).

Discussion.—*Ommatius monensis* is recognized by the white to gray tomentum of the head; white facial hairs and bristles, 2–3 long black proclinate postocular bristles; a strong bulge in the costal margin of the wings of males; black femora, brownish tibiae; black forecoxal bristles; mostly whitish leg vestiture; hind femur with a posterior row of black bristles; basistylus with 4 long, slightly curved spines and an absence of scutellar bristles.

Ommatius monensis is greatly different from the other reported species from the Caribbean area. Its black, robust body, black forecoxal bristles, strong costal bulge of the wing, whitish leg vestiture and terminalia readily separates this species from others.

Etymology.—The species is named after the island on which it was found.

Ommatius falcatus Scarbrough, New Species

Fig. 6

Male.—Length 16.5 mm. Head brown to dark brown; tomentum of face yellow to golden brown, front more brown, occiput light brownish white. Bristles and hairs of face pale yellow to brownish yellow, bristles darkest; proclinate postoculars, ocellars and most antennal bristles brown, those of lower half of antennal segment 1 pale brown; beard and remaining occipital vestiture white. Postoculars straight or curve forward slightly near tips. Antennal segments about same length,

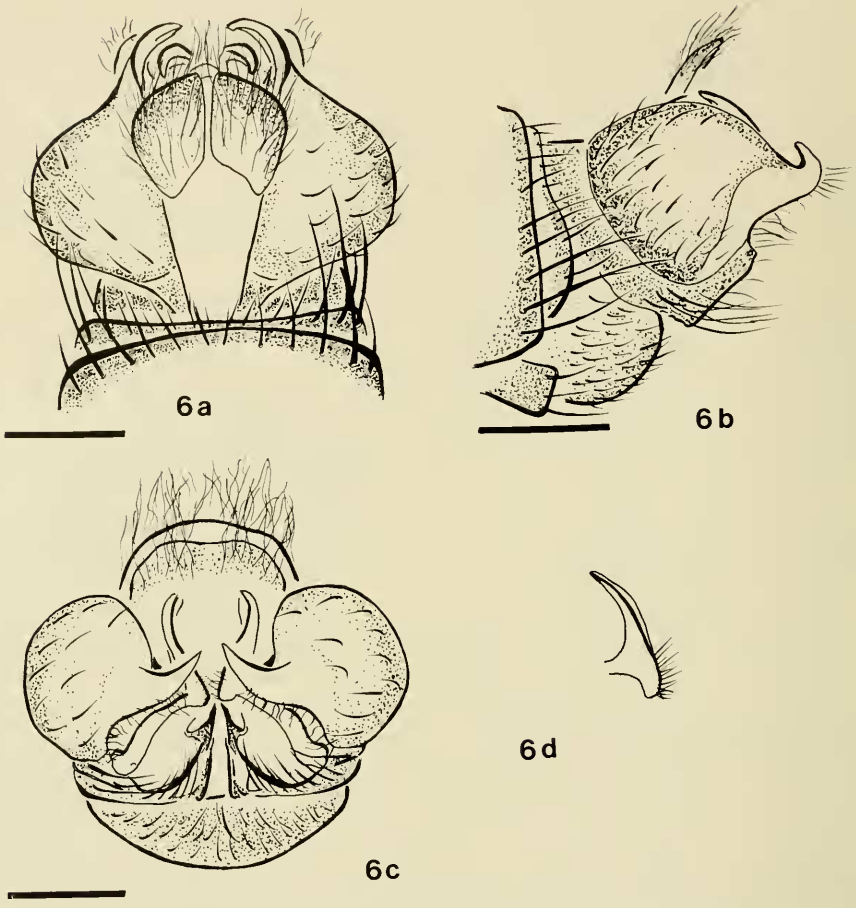


Fig. 6. *Ommatius falcatus* n. sp., male terminalia: (a) dorsal, (b) lateral, and (c) apical views; (d) left dististylus. See Figures 1–4 for parts of terminalia. Horizontal bar = 0.5 mm.

third slightly longer than wide, style slightly more than twice length of all segments combined.

Thorax brown.—Scutum with brown pollen; grooves, sides, prescutellum and scutellum pollinosity yellow to brownish yellow. Pile of thorax pale yellowish to white, most abundant on prothorax and humeral callus, sparse on pleuron, between dorsocentrals and on scutellum. Chaetotaxy: 2 notopleurals, 1 supraalar and 1 postalar; 2–3 pale, weak prescutellar dorsocentrals; row of pleural bristles pale brownish yellow. Marginal scutellar bristles absent. Halter yellow.

Wings hyaline with a moderate costal bulge anteriorly. Marginal and submarginal cells brownish, costal and subcostal cells somewhat yellowish. Crossvein r-m before middle of discal cell; second posterior cell somewhat constricted beyond middle.

Legs.—Coxae brown with yellowish pollen, pile, and bristles. Femora orangish yellow to orange with black as follows: apical halves along anterior and dorsal surfaces of fore- and midfemora, apical ½ of hindtibiae, apical ⅘ of hindfemur, and narrow apical band on midtibiae; tarsi mostly dark brown or black with basal

tarsomeres of fore- and midtarsi brownish yellow to orange. Bristles of femora and tibiae primarily orangish, slightly lighter on forelegs; tibial apices with black bristles, 3 additional black ones before apices on mid- and hindtibiae; midfemur with 4 black bristles on anterior surface and 1 on posteroapical surface; hindfemur with 3 black bristles in anteroventral row and 7–8 in posteroventral row. Tarsal bristles black except for 2–3 orangish ones on foretarsus. Legs with fine yellowish pile, some black in black areas; tibiae with short appressed black setulae and a few thin, long black hairs ventrally on foretibia.

Abdomen brown, lightest along apical margins of segments, with brownish to yellow pollen, lightest pollen laterally and ventrally on segments. Bristles and pile primarily yellowish with a few pale brown bristles on tergite 1; brown setae and a few bristly hairs and several longer yellow hairs on apical corners of tergites 6–8. Tergite 8 short, only partially exposed; sternite 8 concealed by sternite 7.

Terminalia (Fig. 6) mostly dark brown with lower surface and apex of epandrium reddish. Epandrium greatly swollen on basal ⅔ or more, tapering abruptly and becoming sickle-like apically; the distal margin with long fine hairs along much of its length, stronger dark hairs basally. Hypandrium slightly swollen and with yellow hairs. Basistylus with a somewhat circular basal ridge, forming a sharp finger-like spine. Dististylus slender, slightly curved forward and narrowed toward tip; cercus brownish, short and with pale yellow pile.

Female.—Unknown.

Holotype.—♂ Maricao, Puerto Rico, Nov. ?. 1956 (C. Valarques). The type is deposited in the USNM collection, Washington, D.C.

Discussion.—*Ommatius falcatus* is recognized by the pale yellow to brownish yellow facial hairs and bristles, yellow to golden brown facial tomentum, a moderate costal bulge in the wing, brownish marginal and submarginal cells yellowish costal and subcostal cells, a slight constriction in the second posterior cell, an epandrium with apical ⅓ sickle-shaped, dististylus slightly curved forward, and the absence of scutellar marginal bristles.

Ommatius falcatus is similar to the Puerto Rican *O. marginellus* but is easily recognized by a slightly larger body, yellow halter, yellowish costal and subcostal cells, and the sickle-shaped apical ⅓ of the epandrium.

Etymology.—The species is named after the sickle-shaped apical portion of the epandrium.

Ommatius vitreus Bigot

Ommatius vitreus Bigot, 1895: 246, type locality: Haiti, Type ♀; Martin and Papavero, 1970: 60, removed from synonymy.

Ommatius marginellus: Hull, 1962: 435, listed *O. vitreus* as a synonym.

Scarbrough (in press) redescribed the female lectotype and described the male.

A single female specimen captured on Mona Island (Los Pinas 23 Oct. 1955, W. H. Cross) differs from specimens reported from Hispaniola in that the facial hairs are wholly white rather than 4–6 hairs being dark brown to black; the facial tomentum and abdominal pollen are white to gray rather than the typical yellowish white; hairs and bristles of the legs are white rather than yellowish.

Ommatius tibialis Say

Ommatius tibialis Say, 1923: 49 (1859: 63), type locality: U.S.A. Pennsylvania, ♂, ♀; Martin and Papavero, 1970: 60.

Although Martin and Papavero (1970) list this species from Puerto Rico and the Virgin Islands, it is doubtful that it actually occurs there or elsewhere in the Caribbean. Its nearest reported locality is Florida (U.S.A.). Males of *O. tibialis* are easily recognized by having the epandrium excavated on the apical ⅓ to ½ of its dorsal surface and by an absence of marginal scutellar bristles. Unfortunately, the male terminalia were not used until recently to separate species in the Caribbean. Furthermore, *O. marginellus* was the only species in the area thought to have marginal bristles, and thus specimens without this character were arbitrarily identified as *O. tibialis*. However, none of the specimens which I have examined from the middle Caribbean Islands or southward has an excavated epandrium or other diagnostic characters of *O. tibialis*. Thus I propose to remove *O. tibialis* from the list of Caribbean Asilidae.

Acknowledgments

I thank the following for the loan of specimens: Norman Woodley, Museum of Comparative Zoology, Cambridge, Mass.; Pedro Wygodzinsky, American Museum of Natural History, New York; Lloyd Knutson and Raymond J. Gagné, Systematic Entomology Laboratory, USDA, Washington, D.C.; Leif Lyneborg, Universitetet Zoologiske Museum, Copenhagen, Denmark; Angel B. Ortiz and J. A. Ramos, University of Puerto Rico, Mayaguez; Rafael Ingles and Jorge Santigo Blay, Museum of Entomology, University of Puerto Rico, Rio Piedras. Thanks are also due to the staff of the Diptera section in the Systematic Entomology Laboratory, USDA at the U.S. National Museum who so kindly assisted me with numerous helpful discussions and suggestions during this study; to D. M. Wood, Biosystematics Research Institute, Agriculture Canada, for making helpful suggestions on an early draft of the manuscript; and to the Towson State University Faculty Research Committee for support of this study.

Literature Cited

Bromley, S. W. 1929. The Asilidae of Cuba (Diptera). Ann. Entomol. Soc. Am. 22: 272–294.

Bigot, J. M. F. 1875. Diptères nouveaux ou peu connus. 4e partie V. Asilidae exotiques nouveaux. Ann. Soc. Entomol. Fr. 5: 237–248.

Coquillett, D. W. 1910. The type species of the North American genera of Diptera. Proc. U.S. Nat. Mus. 37: 499–647.

Curran, C. H. 1928. New species of *Ommatius* from America, with key (Diptera: Asilidae). Am. Mus. Novit. 327: 1–6.

Fabricius, J. C. 1781. Species insectorum exhibentes eorum differentias specificas, synonyma, auctorum, locanatalia metamorphosin. II. Hamburgi et Kilonii 2: 464.

———. 1787. Mantissa insectorum sisten species nuper detectas. II. Hafniae. 2: 178.

———. 1805. Systema antliatorum secundum ordine, genera, species. Brunvigae, p. 170.

Farr, T. H. 1965. The robber-flies of Jamaica (Diptera: Asilidae). Pt. 2. Bull. Inst. Jam. Sci. Ser. 13: 5–36.

Hull, F. M. 1962. Robber flies of the world. The genera of the family Asilidae. U.S. Natl. Mus. Bull. 224: 434–436.

Linsley, E. G. and R. L. Usinger. 1966. Insects of the Galapagos Islands. Proc. Calif. Acad. Sci. 33: 166.

Martin, C. H. and N. Papavero. 1970. Family Asilidae, pp. 58–60. *In* Catalogue of the Diptera of the Americas South of the United States. Mus. Zool. Univ. Sao Paulo. No. 35b, 139 pp.

Ramos, J. A. 1946. The insects of Mona Island (W.I.). J. Agric. Univ. P.R. 30: 56.

Say, T. 1823. Descriptions of dipterous insects of the United States. Acad. Nat. Sci. Phil. 3: 49.

———. 1859. p. 63. *In* LeConte, J. L. The complete writings of Thomas Say on entomology of North America. New York. 412 pp.
Scarbrough, A. G. Synopsis of *Ommatius* Wiedemann from Hispaniola. J. N.Y. Entomol. Soc. In press.
Wiedemann, C. R. W. 1821. Diptera exotica. Kiliae. 1: 213.
Wolcott, G. N. 1948. The insects of Porto Rico. J. Agric. Univ. P.R. 32: 453.

Meeting Announcement

ICSEB—III,
Third International Congress of Systematic and Evolutionary Biology, 1985

The Congress will be held on 4–10 July 1985 at the University of Sussex, near Brighton, England.

The following Congress Symposia are being organized:

Symbiosis in Evolution
Conservation of Tropical Ecosystems
Biogeographic Evolution of the Malay Archipelago
Adaptational Aspects of Physiological Processes
Co-evolution in Ecosystems and the Red Queen Hypothesis
Angiosperm Origins and the Biological Consequences
The Measurement of Rates of Evolution
Molecular Biology and Evolutionary Theory
Co-evolution and Systematics
Molecules vs. Morphology in Phylogency: Conflict or Compromise?
Random and Directed Events in Evolution
Biochemical Innovation in Microbial Communities

There will also be Special Interest Symposia on other topics, as well as sessions for contributed papers, films and poster papers.

For further information write to: Professor Barry Cox, ICSEB Congress Office, 130 Queen's Road, Brighton, Sussex BN1 3WE, UK.